Component Procedures: Disc Brake System

Table of Contents

Component Procedures: Disc Brake System

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Brake Components > Front Pads	58101F3A00	Us Built	86.29	
Brake Components > Front Pad?	58101F2A50	With Sport	83.94	
Brake Components > Front Pad?	58101F2A00	Without Sport	83.94	
Brake Components > Rear Pads	58302F2A30	Korea Built	66.82	
Brake Components > Rear Pads	58302F3A30	Us Built	68.69	
Front Brakes	5811233000	Caliper Piston	46.76	
Front Brakes > Caliper > Kor?	58180F2A50	Left	375.40	
Front Brakes > Caliper > Kor?	58190F2A50	Right	375.40	
Front Brakes > Caliper > Kor?	58110F2000	Left	580.37	
Front Brakes > Caliper > Kor?	58130F2000	Right	580.37	
Front Brakes > Caliper > Us ?	58180F3A00	Left	407.90	
Front Brakes > Caliper > Us ?	58190F3A00	Right	407.90	
Front Brakes > Caliper Seal ?	5811433000	Piston Boot	10.56	
Front Brakes > Caliper Seal ?	58113D3000	Piston Seal	6.27	
Front Brakes > Dust Shield	51755F2000	Left	65.26	
Front Brakes > Dust Shield	51756F2000	Right	65.26	
Front Brakes > Flex Hose > W?	58731F2510	Left	131.02	
Front Brakes > Flex Hose > W?	58732F2510	Right	131.02	
Front Brakes > Flex Hose > W?	58731F2000	Left	131.02	
Front Brakes > Flex Hose > W?	58732F2000	Right	131.02	
Front Brakes > Rotor	517123Y000	Us Built	106.31	
Front Brakes > Rotor > Korea?	51712C1000	With Sport	175.58	
Front Brakes > Rotor > Korea?	517123X000	Without Sport	108.44	
Rear Brakes	58213F2300	Caliper Piston	134.47	
Rear Brakes > Backing Plate	58390F2000	Left	195.29	
Rear Brakes > Backing Plate	58390F2100	Right	195.29	
Rear Brakes > Caliper > Kore?	58310F2A30	Left	381.50	
Rear Brakes > Caliper > Kore?	58311F2A30	Right	381.50	
Rear Brakes > Caliper > Us B?	58310F3A30	Left	260.87	
Rear Brakes > Caliper > Us B?	58311F3A30	Right	260.87	
Rear Brakes > Caliper Seal K?	5823328300	Piston Boot	19.47	
Rear Brakes > Caliper Seal K?	5823228300	Piston Seal	6.60	
Rear Brakes > Flex Hose > Le?	58737F2300	Disc Brakes	102.26	
Rear Brakes > Flex Hose > Le?	58737F2000	Drum Brakes	102.26	
Rear Brakes > Flex Hose > Le?	58737F2300	Korea Built	102.26	
Rear Brakes > Flex Hose > Le?	58737F3300	Us Built	102.26	
Rear Brakes > Flex Hose > Le?	58737F2000	Korea Built	102.26	
Rear Brakes > Flex Hose > Le?	58737F3000	Us Built	102.26	
Rear Brakes > Flex Hose > Ri?	58738F2300	Disc Brakes	102.26	
Rear Brakes > Flex Hose > Ri?	58738F2000	Drum Brakes	102.26	
Rear Brakes > Flex Hose > Ri?	58738F2300	Korea Built	102.26	
Rear Brakes > Flex Hose > Ri?	58738F3300	Us Built	102.26	
Rear Brakes > Flex Hose > Ri?	58738F2000	Korea Built	102.26	
Rear Brakes > Flex Hose > Ri?	58738F3000	Us Built	102.26	
Rear Brakes > Rotor	584113X300	Korea Built	144.18	
Rear Brakes > Rotor	584113Y300	Us Built	100.68	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Brake Components > Brakes, R&R > Front Pads	B	0.9	0.0
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.2	
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.3	
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.2	

Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.1	
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.2	
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.5	
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.6	
Remove & Replace	Brake Components > Brakes, R&R > Front Pads >?		0.4	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?	B	0.9	0.0
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.2	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.3	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.2	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.1	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.2	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.5	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.6	
Remove & Replace	Brake Components > Brakes, R&R > Rear Pads/Sh?		0.4	

Specifications Quick Reference (itype_439)

Quick Specifications
- item

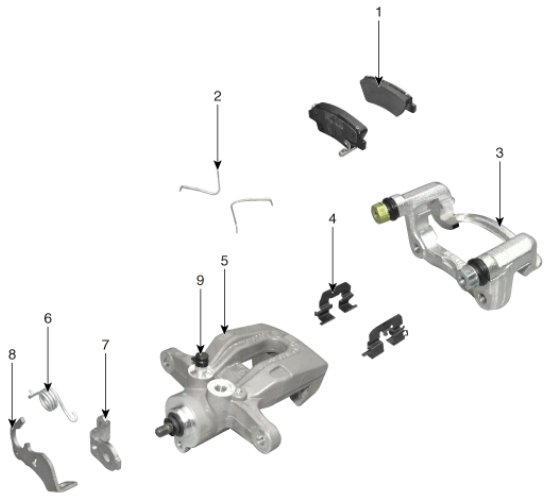
Front Disc Brake - Components and Components Location (Article 45177)

- Components

1. Caliper body 2. Bleed screw 3. Pad return spring 4. Brake pad 5. Caliper carrier 6. Pad inner shim 7. Pad retainer

Rear Disc Brake - Components and Components Location (Article 45180)

- Components



1. Brake pad 2. Pad return spring 3. Caliper carrier 4. Pad retainer 5. Caliper body 6. Return spring 7. Stopper 8. Operating lever 9. Bleed screw

Front Disc Brake - Repair Procedures (Article 45178)

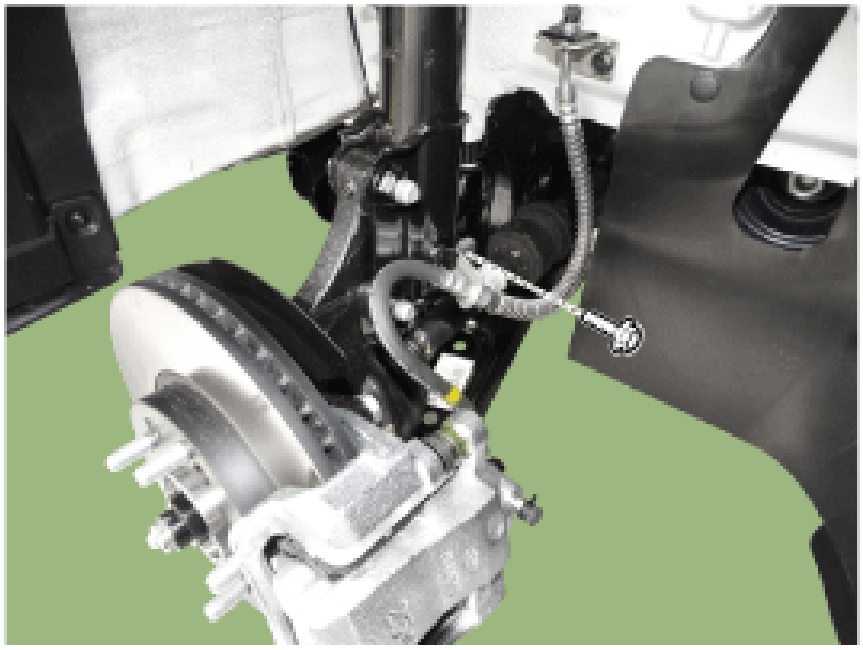
- Removal

- Loosen the wheel nuts slightly. Raise the vehicle, and make sure it is securely supported.
- Remove the front wheel and tire (A) from front hub. Tightening torque : 107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft) Be careful not to damage the hub bolts when removing the front wheel and tire (A).

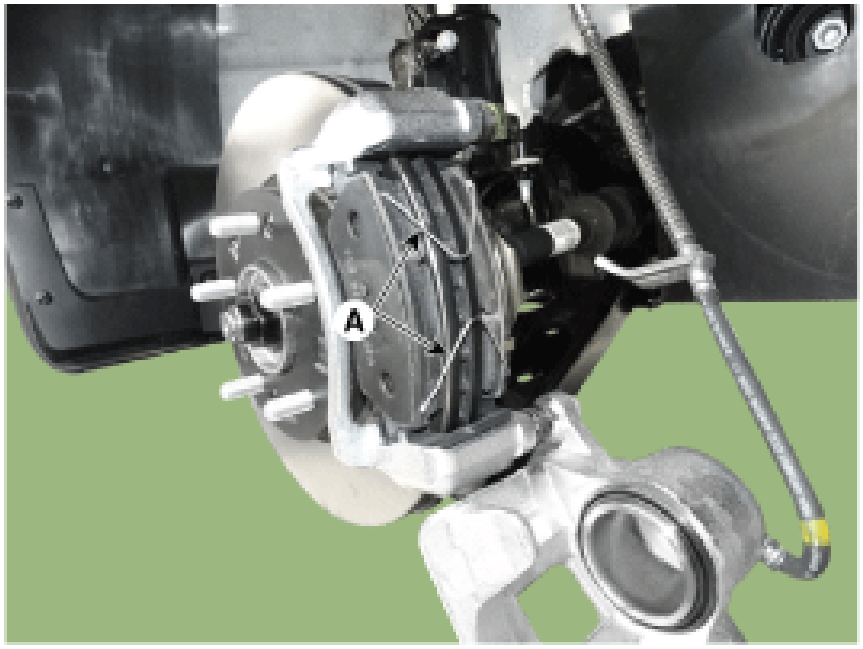
Be careful not to damage the hub bolts when removing the front wheel and tire (A).

NOTICE

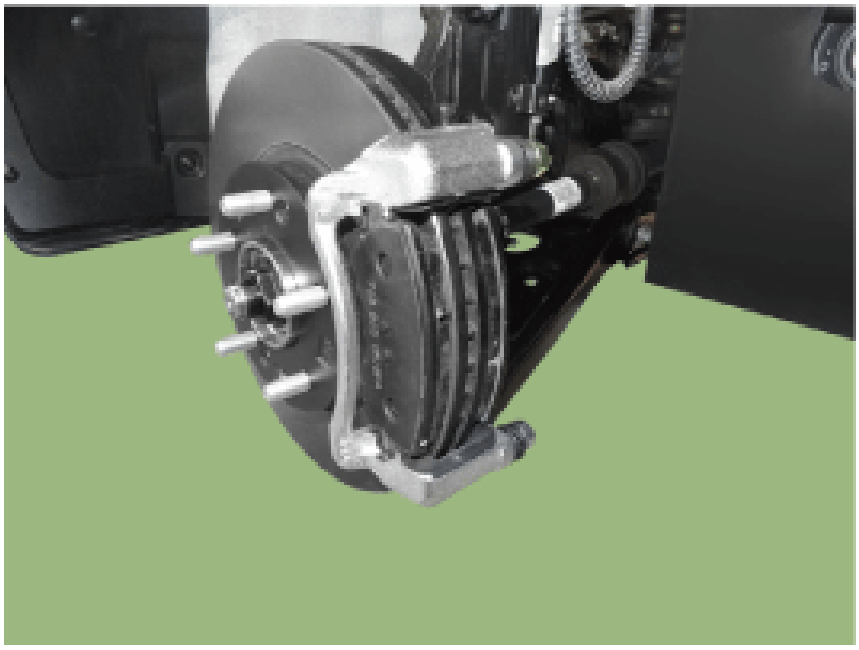
- Be careful not to damage the hub bolts when removing the front wheel and tire (A).
- Loosen the brake hose mounting bolt and then remove the brake hose bracket. Tightening torque : 8.8 - 13.7 N.m (0.9 - 1.4 kgf.m, 6.5 - 10.1 lb-ft)



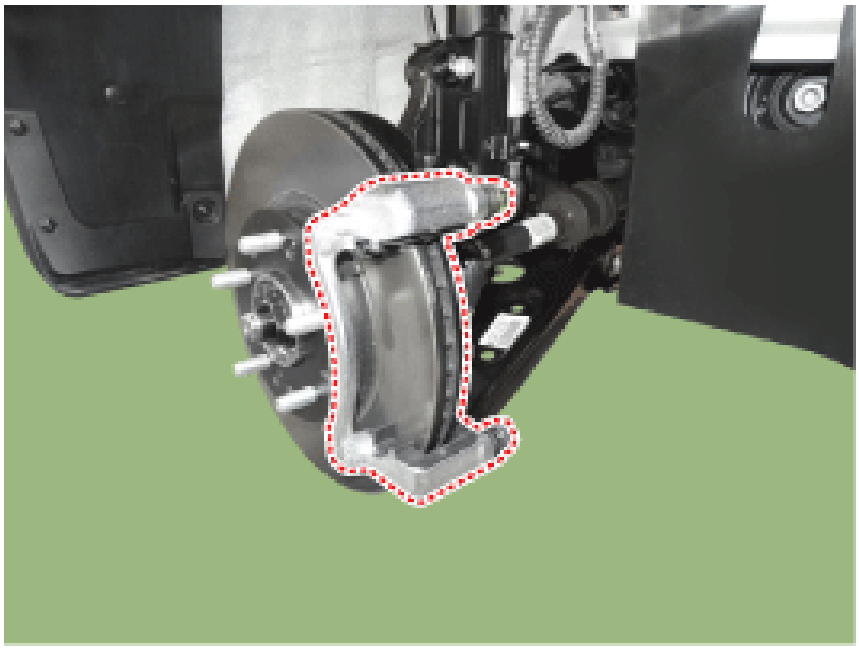
- put down the caliper body by loosening the guided rod bolt. Tightening torque : 21.6 - 31.4 N.m (2.2 - 3.2 kgf.m, 15.9 - 23.1 lb-ft)
- Remove the pad return spring (A). Pad return springs must be replaced with new ones whenever pads are replaced. Technicians should be careful not to deform pad return springs. When pad return springs are deformed, it may cause improper braking, more fuel consumption.



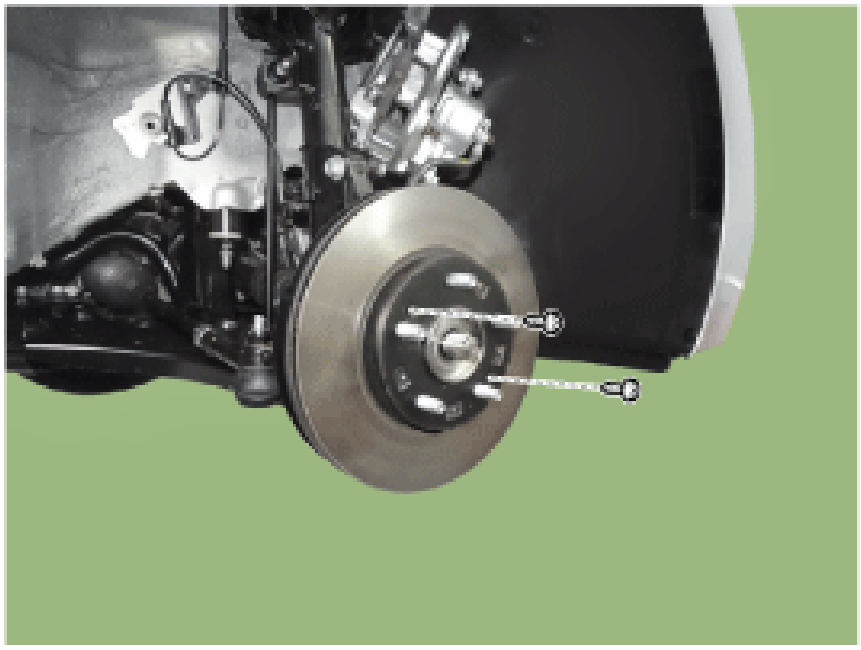
Pad return springs must be replaced with new ones whenever pads are replaced. Technicians should be careful not to deform pad return springs. When pad return springs are deformed, it may cause improper braking, more fuel consumption.
- Pad return springs must be replaced with new ones whenever pads are replaced.
- Technicians should be careful not to deform pad return springs.
- When pad return springs are deformed, it may cause improper braking, more fuel consumption.
- Remove the brake pad .



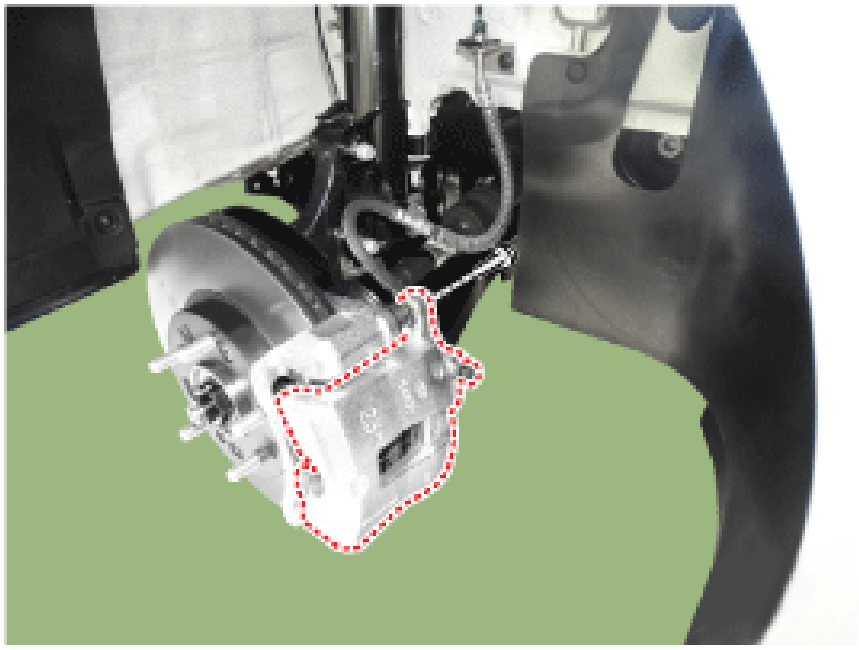
- Separate the pad retainer. And remove the caliper carrier by loosening the caliper mounting bolts. Tightening torque : 78.5 - 98.1 N.m (8.0 - 10.0 kgf.m, 57.9 - 72.3 lb-ft)



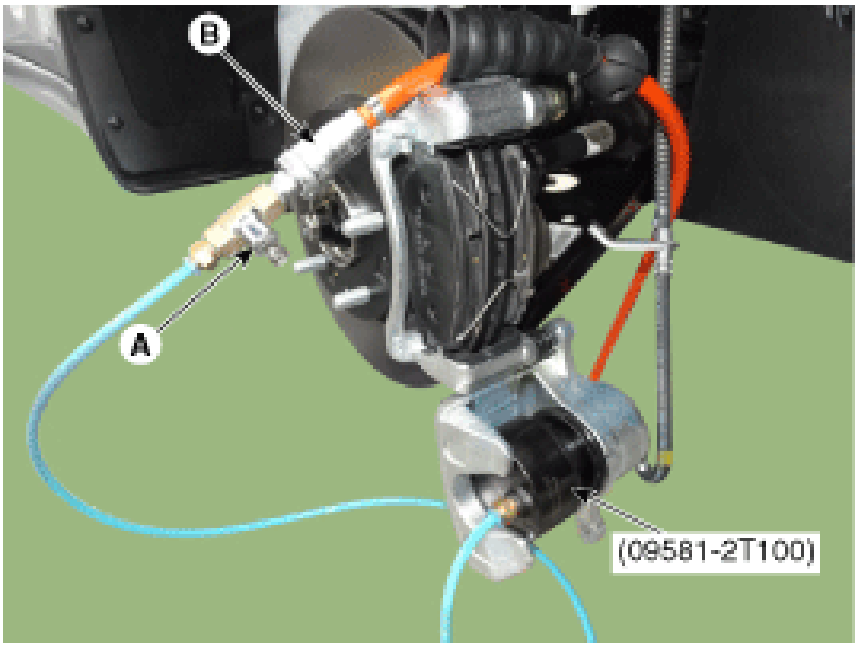
- Remove the front brake disc by loosening the screws (A). Tightening torque : 4.9 - 5.9 N.m (0.5 - 0.6 kgf.m, 3.6 - 4.3 lb-ft)



- Replacement

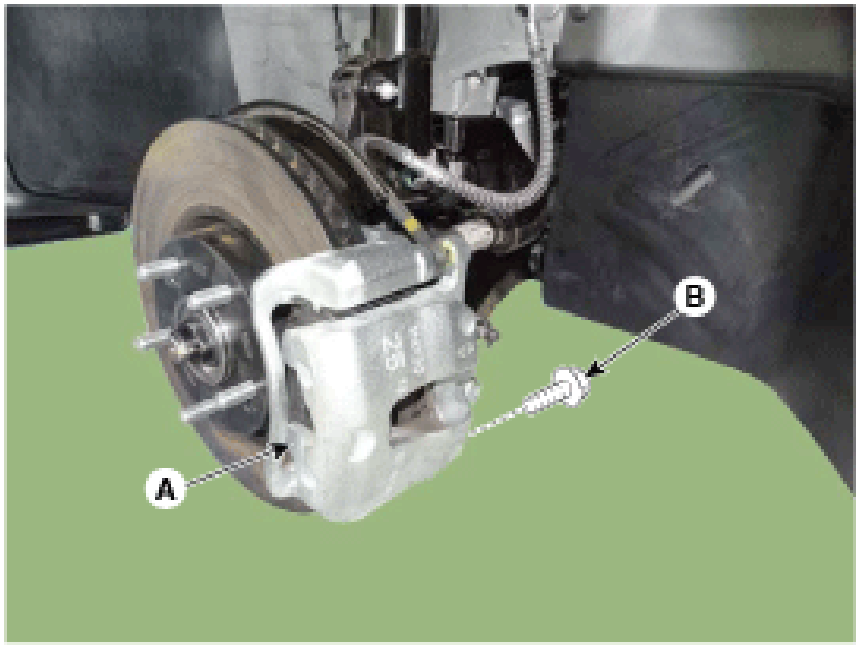


- Replace the brake pad with a new one.
- Install the pad return spring (A). Pad return springs must be replaced with new ones whenever pads are replaced. Technicians should be careful not to deform pad return springs. When pad return springs are deformed, it may cause improper braking, more fuel consumption.
- Use a SST (09581-2T100) when installing the brake caliper assembly. Connect an air hose (B) to the SST after confirming that the valve of the SST is surely closed. Input the SST in the caliper and press the caliper piston while opening the valve of the SST slowly couter clock wise. Close the valve (A) of the SST and disconnect the air hose (B); then, open the valve again to get the rest of air out and remove the SST from the caliper.



Connect an air hose (B) to the SST after confirming that the valve of the SST is surely closed. Input the SST in the caliper and press the caliper piston while opening the valve of the SST slowly couter clock wise. Close the valve (A) of the SST and disconnect the air hose (B); then, open the valve again to get the rest of air out and remove the SST from the caliper.

- Connect an air hose (B) to the SST after confirming that the valve of the SST is surely closed.
- Input the SST in the caliper and press the caliper piston while opening the valve of the SST slowly couter clock wise.
- Close the valve (A) of the SST and disconnect the air hose (B); then, open the valve again to get the rest of air out and remove the SST from the caliper.
- Install the caliper body (A) then tighten the guide rod bolt (B). Tightening torque : 21.6 - 31.4 N.m (2.2 - 3.2 kgf.m, 15.9 - 23.1 lb-ft)



- Install the brake hose mounting bolt with the brake hose bracket at the shock absorber. Tightening torque : 8.8 - 13.7 N.m (0.9 - 1.4 kgf.m, 6.5 - 10.1 lb-ft)

- Inspection

Front brake disc thickness check

- Check the brake pads for wear and fade.
- Check the brake disc for damage and cracks.
- Remove all rust and contamination from the surface, and measure the disc thickness at 24 points, at least,

of same distance (5mm) from the brake disc outer circle. Front brake disc thickness - Standard : 23 mm (0.91 in) - Service Limit : 21.4 mm (0.84 in) Deviation : Less than 0.015 mm (0.0002 in)

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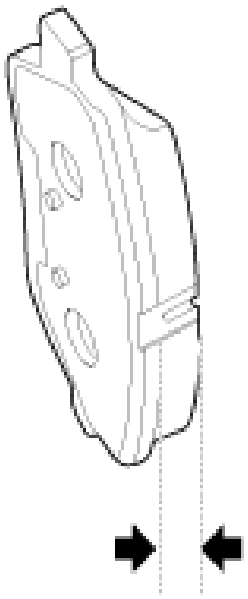
- If wear exceeds the limit, replace the discs and pad assembly left and right of the vehicle.

Front Brake Pad Check

- Check the pad wear. Measure the pad thickness and replace it, if it is less than the specified value. Pad thickness Standard value : 11 mm (0.43 in) Service limit : 2.0 mm (0.0787 in)
- Check that grease is applied, to sliding contact points and the pad and backing metal for damage.



Front brake disc runout check

- Place a dial gauge about 10mm (0.2in.) from the outer circumference of the brake disc, and measure the runout of the disc. Brake disc runout Limit : 0.050 mm (0.0016 in.) or less (new one)

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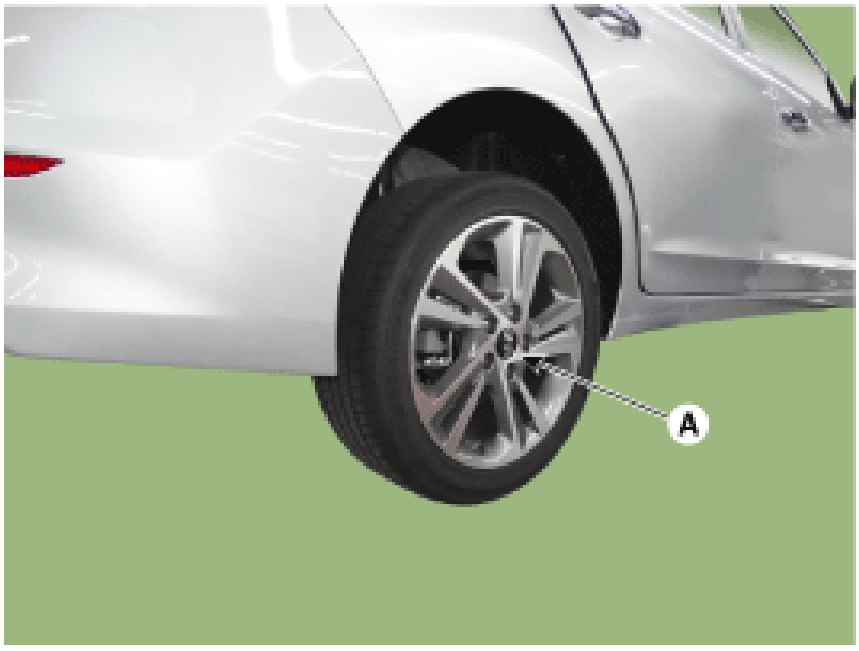
- If the runout of the brake disc exceeds the limit specification, replace the disc, and then measure the runout again.
- If the runout does not exceed the limit specification, install the brake disc after turning it 180° and then check the runout of the brake disc again.
- If the runout cannot be corrected by changing the position of the brake disc, replace the brake disc.
- Installation
- To install, reverse the removal procedure.
- After installing, bleed the brake system. (Refer to Brake System - "Brake System Bleeding") (Refer to Brake System - "ABS System Bleeding") (Refer to Brake System - "ESP System Bleeding")

Rear Disc Brake - Repair Procedures (Article 45181)

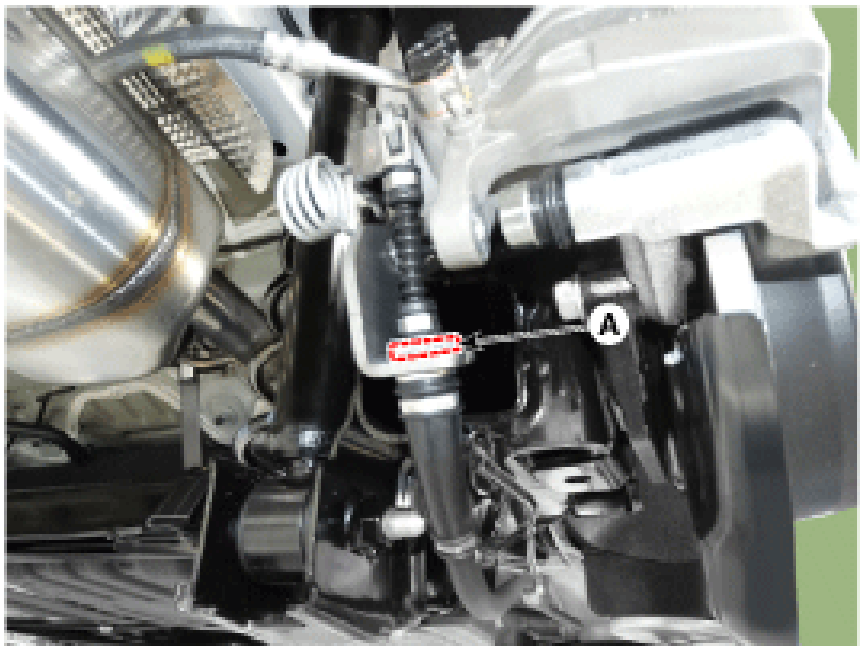
- Removal
- Loosen the wheel nuts slightly. Raise the vehicle, and make sure it is securely supported.
- Remove the rear wheel and tire (A) from front hub. Tightening torque : 107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft) Be careful not to damage the hub bolts when removing the rear wheel and tire (A).



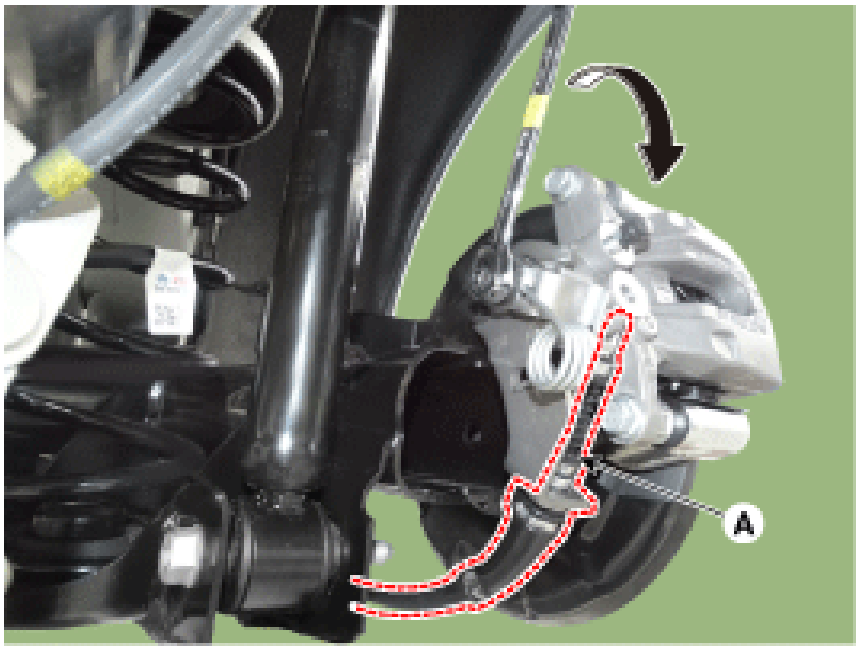
Be careful not to damage the hub bolts when removing the rear wheel and tire (A).

NOTICE

- Be careful not to damage the hub bolts when removing the rear wheel and tire (A).
- Remove the parking brake cable fixed clip (A).

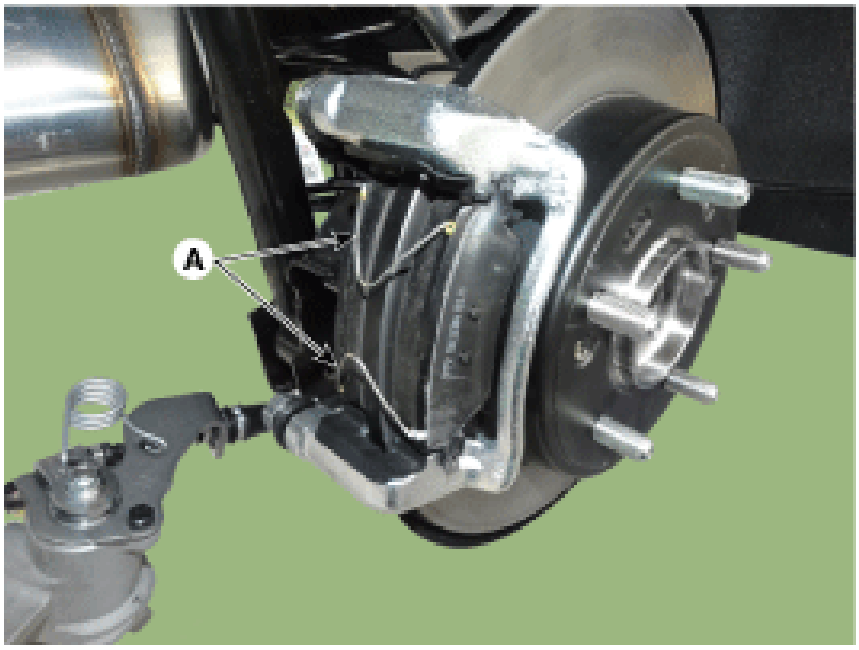


- Pull the spanner as a below arrow in order to loosen the cable and then remove the parking cable (A).

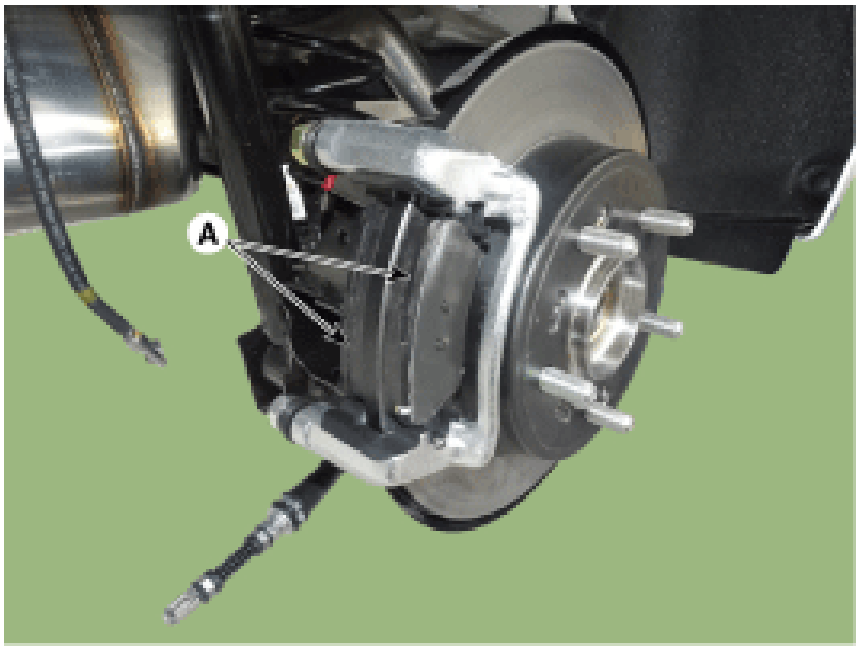


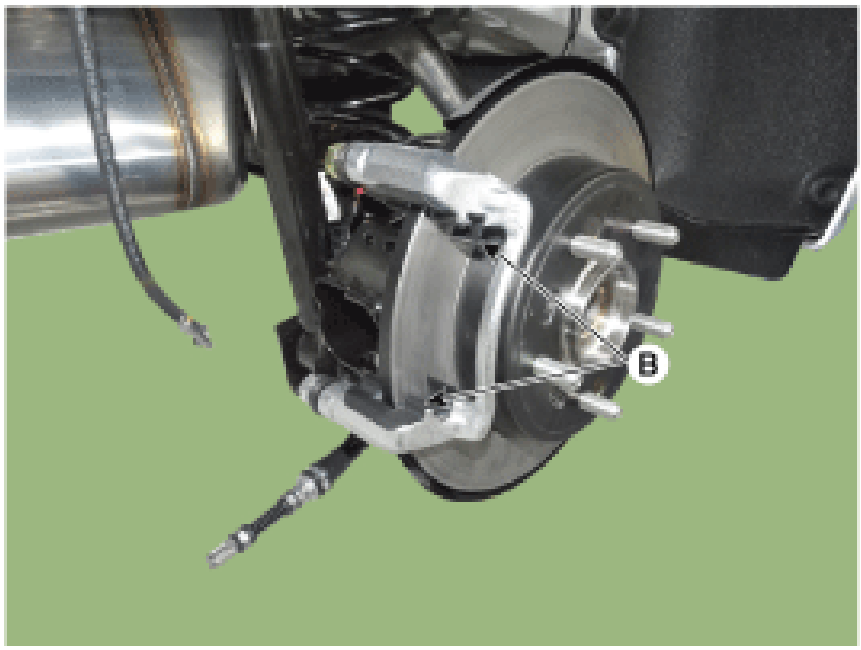
- Loosen the guide rod bolt (B) and then pivot the caliper body (A) up out of the way. Tightening torque :
21.6 - 31.4 N.m (2.2 - 3.2 kgf.m, 15.9 - 23.1 lb-ft)

- Remove the pad return spring (A).

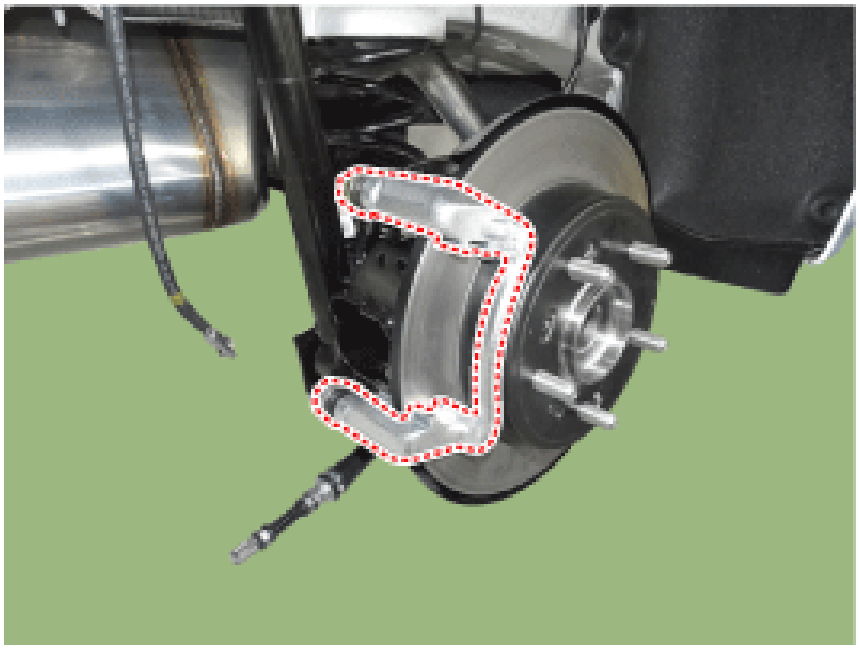


- Separate the brake pad (A) and pad retainer (B).

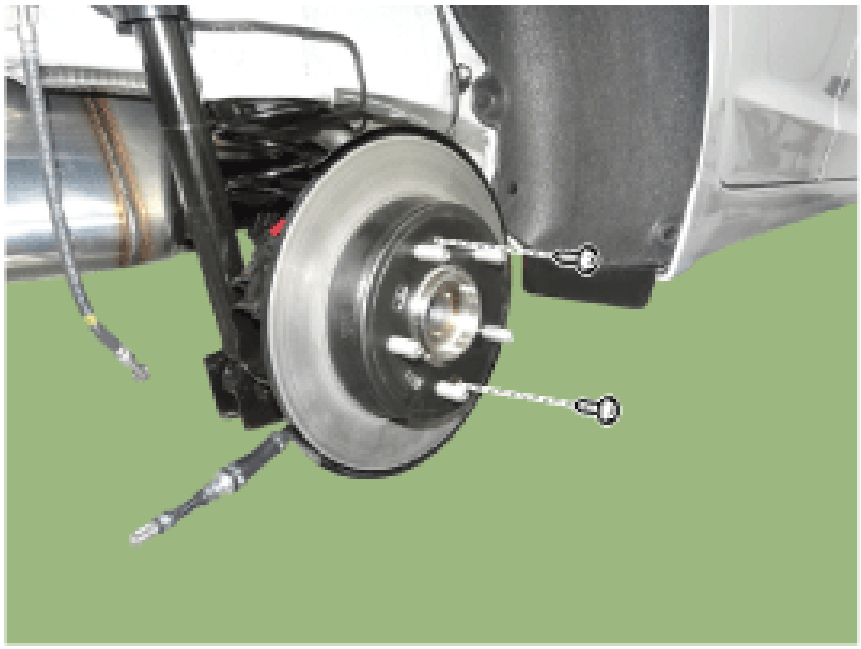




- Loosen the caliper mounting bolts and then removethe rear caliper assembly (A). Tightening torque : 63.7 - 73.5 N.m (6.5 - 7.5 kgf.m, 47.0 - 54.2 lb-ft)



- Remove the rear brake disc by loosening the screws. Tightening torque : 4.9 - 5.9 N.m (0.5 - 0.6 kgf.m, 3.6 - 4.3 lb-ft)



- Replacement

Brake Pad Replacement

- Replace the brake pad (A) and pad retainer.
- Install the pad return spring (A). Pad return springs must be replaced with new ones whenever pads are replaced. Technicians should be careful not to deform pad return springs. When pad return springs are deformed, it may cause improper braking, more fuel consumption.

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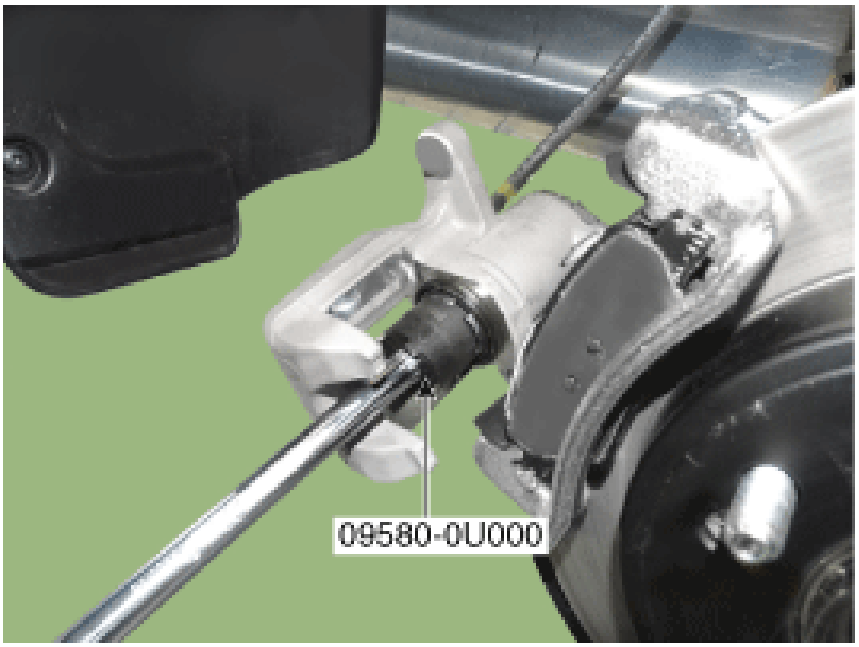
- Pad return springs must be replaced with new ones whenever pads are replaced.
- Technicians should be careful not to deform pad return springs.
- When pad return springs are deformed, it may cause improper braking, more fuel consumption.
- Use a SST (09580-0U000) when installing the brake caliper assembly.



- Install the caliper body (A) then tighten the guide rod bolt(B). Tightening torque : 21.6 - 31.4 N.m (2.2 - 3.2 kgf.m, 15.9 - 23.1 lb-ft)
- Install the parking brake cable fixed clip (A).
- Inspection

Rear Brake Disc Thickness Check

- Check the brake pads for wear and fade.
- Check the brake disc for damage and cracks.
- Remove all rust and contamination from the surface, and measure the disc thickness at 24 points, at least, of same distance (5mm) from the brake disc outer circle. Brake disc thickness Standard : 10 mm (0.394 in) Service limit : 8.4 mm (0.331 in) Deviation : less than 0.015 mm (0.0002 in)

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- If wear exceeds the limit, replace the discs and pad assembly left and right of the vehicle.

Rear Brake Pad Check

- Check the pad wear. Measure the pad thickness and replace it, if it is less than the specified value. Pad thickness Standard value : 10 mm (0.394 in) Service limit : 2.0 mm (0.0787 in)
- Check the damage of pad, backing metal and contamination with grease.

Rear Brake Disc Runout Check

- Place a dial gauge about 10mm (0.2 in.) from the outer circumference of the brake disc, and measure the runout of the disc. Brake disc runout Limit : 0.055 mm (0.0016 in.) or less (new one)

- If the runout of the brake disc exceeds the limit specification, replace the disc, and then measure the runout again.
- If the runout exceeds the limit specification, install the brake disc after turning it 180° and then check the runout of the brake disc again.
- If the runout cannot be corrected by changing the position of the brake disc, replace the brake disc.

- Installation

- To install, reverse the removal procedure.
- Use a SST (09580-0U000) when installing the brake caliper assembly. Wind the piston into the caliper body until it is fully retracted. Do not use any power assisted tools for this task.

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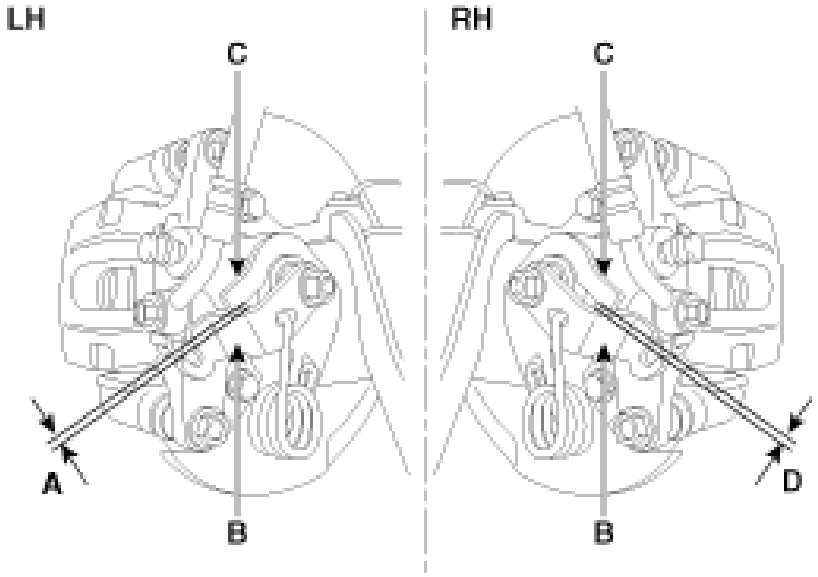
- Wind the piston into the caliper body until it is fully retracted.
- Do not use any power assisted tools for this task.
- After installing, bleed the brake system. (Refer to Brake System - "Brake System Bleeding") (Refer to Brake System - "ABS System Bleeding") (Refer to Brake System - "ESP System Bleeding")

- Parking Brake Adjustment

Re-setting of the parking brake is necessary after overhauling the caliper body, or if the brake calipers, housing, parking brake cable or brake discs have been changed.

- Re-setting of the parking brake is necessary after overhauling the caliper body, or if the brake calipers, housing, parking brake cable or brake discs have been changed.
- Remove the floor console to reach the adjusting nut.
- Loosen the parking brake cable until both operating levers rest in fully off position.
- Bring the brake pads in their operating position by pressing the brake pedal down several times until there is resistance.
- Tension the parking brake cable by tightening the adjusting nut, until the operating levers on both calipers lift from the stop, up to a distance of (A) and (D) between operating lever (B) and stopper (C). Distance (A + D) : Max. 3 mm (0.12 in)



- Refit the floor console.
- Parking brake lever in the car must be in fully loosened position.
- If the handbrake cables where changed, actuate the parking brake a few times with maximum force to stretch the parking brake cables, and then control adjusting as above.
- Check the wheels of their free operation.
- Test drive.

All Technical Service Bulletins (itype_100)

Tsbs
- BRAKE SERVICE BEST PRACTICE RECOMMENDATIONS (21-BR-002H, 2021/03/19)

OEM Policies and Procedures (itype_120)

Tsbs
- BRAKE SERVICE BEST PRACTICE RECOMMENDATIONS (21-BR-002H, 2021/03/19)